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clc ; clear ; close all ;
% System dynamics
denom = [1 0.9199 0.956];
num = [0.7648];
G = tf ( num , denom ) ; % plant
H = 1; % unity feedback

% Open loop step function
[y , t ] = step ( G ) ;
stepplot ( G ) ;
% writematrix ([ y , t ] , " unit_step_response . txt " ) ;
open_info = stepinfo ( G ) ; % Open loop step information

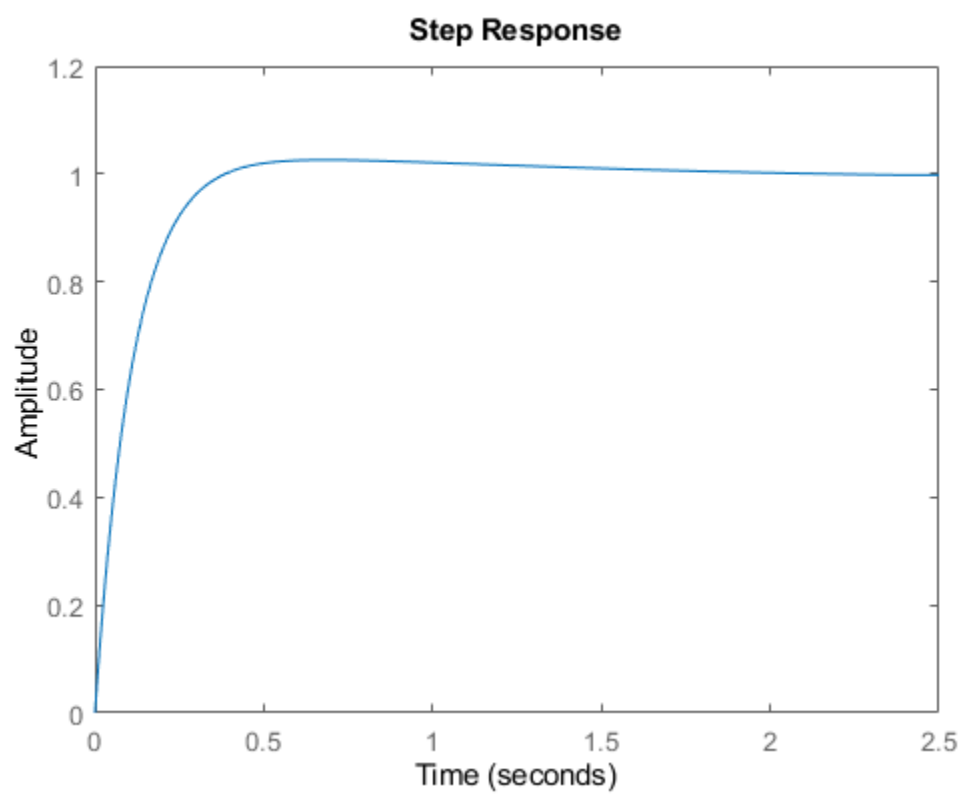
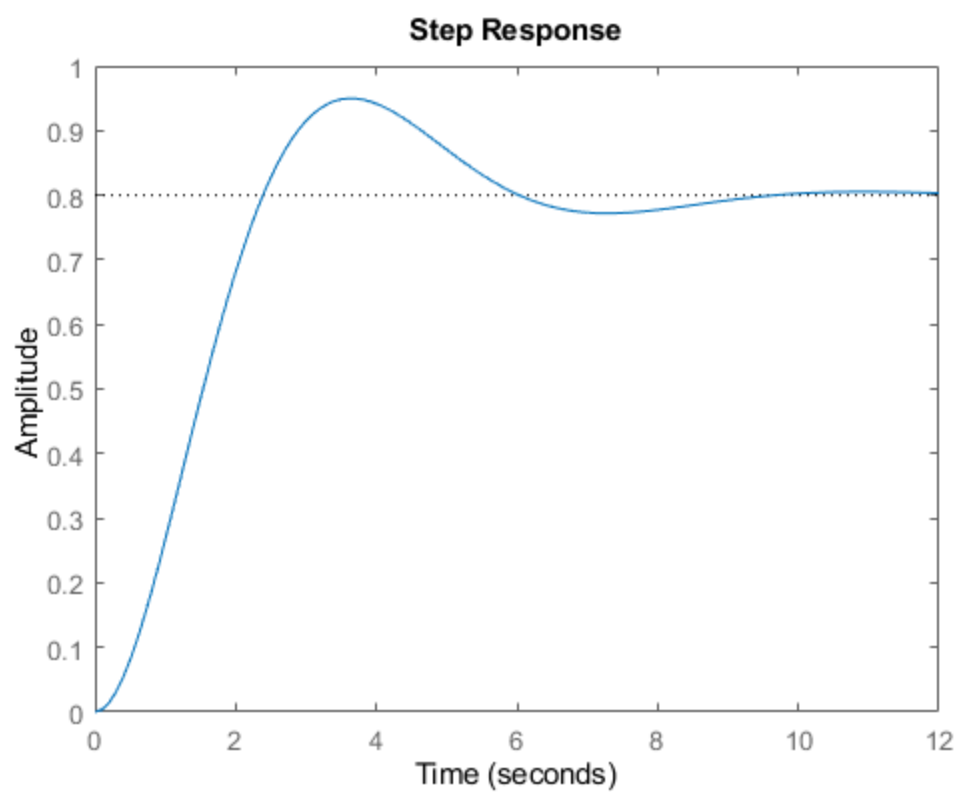
% Controller - select gains to meet performance specifications
Kp = 15;
Kd = 15;
Ki = 12;
C = pid ( Kp , Kd , Ki ) ; % controller
closed_loop = ( C * G ) /(1+ C * G * H ) ; % Make sure you understand this

% System response with controller
figure (2) ;
step ( closed_loop ) ;
closed_info = stepinfo ( closed_loop )

closed_info =

    struct with fields:

        RiseTime: 0.2179
        TransientTime: 1.0455
        SettlingTime: 1.0455
        SettlingMin: 0.9060
        SettlingMax: 1.0259
        Overshoot: 2.5932
        Undershoot: 0
        Peak: 1.0259
        PeakTime: 0.6826
```



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